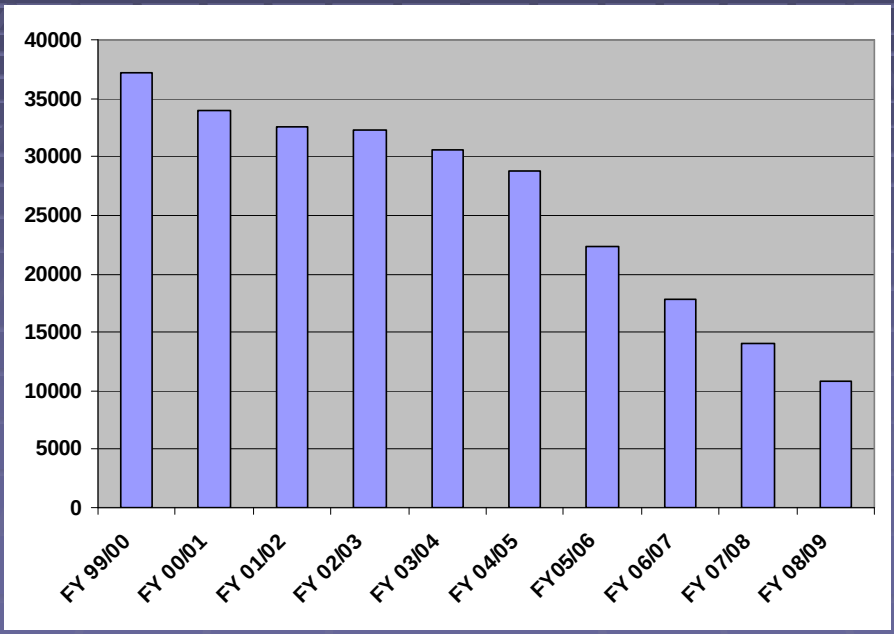
Michigan
2009 Statewide Failed Sewage System Evaluation Summary Report

July 2010

Local Health Department Permits



Introduction

The above bar graph illustrates the dramatic changes in permitting impacting the On-Site Sewage programs at local health departments (LHDs) in Michigan over the past decade. The ongoing reduction in the number of sewage permits issued annually has resulted in reduced resources at LHDs. With this understanding, efforts to simplify elements for accreditation of the On-Site Sewage Treatment Management (OSTM) program were undertaken in developing the Cycle Four guidance. The current process of LHDs reporting annually failed sewage system data to the Department of Natural Resources and Environment (DNRE) is one such effort. To better understand the current process it is important to reflect on what has transpired over the past 12 years relative to the evaluation of on-site sewage systems by LHDs since the accreditation reviews began in late 1998. Therefore, the following discussion is provided.

Evaluation Concept

In May 1995, the Michigan Association for Local Environmental Health Administrators (MALEHA) held a seminar to consider changes in Minimum Program Requirements (MPRs) for the Public Water Supply, Private Water Supply, On-Site Sewage and Food Service programs. During this seminar it was suggested that a program requirement for On-Site Sewage include the implementation of an Operation and Maintenance (O & M) evaluation.

In early 1996, the MALEHA Land Development Subcommittee assembled to review the current MPRs in detail and concluded, “An MPR is recommended to

address the assurance of efforts to monitor the operational effectiveness and maintenance of on-site sewage systems…" The subcommittee suggested a new MPR "putting into place O & M assessment of a percentage of authorized permits".

Joint discussions between the Michigan Department of Environmental Quality (DEQ) and local health representatives resulted in an O & M MPR being added effective October 1, 1996. The MPR called for random O & M evaluations of systems based upon 10% of previous year permit activity and evaluation of all replacement systems.

Pilot Evaluations and Cycle One – 1998 through 2001

In late 1998, the Local Public Health Accreditation process was initiated as pilot evaluations and continued the following year as Cycle One with an MPR and compliance measure for O & M. This required collection of basic data and annual interpretive reports which provided an evaluation of data kept on file. The DEQ developed an O & M guidance document with input of a MALEHA subcommittee in 2000.

For Cycle One, there were two accreditation indicators for the evaluation of sewage systems and a component of each required evaluation data to be collected, interpreted, and summarized by the LHD in the form of an annual report. This report would be provided to the State with the underlying objective of "providing conclusions and recommendations regarding program effectiveness, trends, and improvements necessary to protect public health and the environment."

The first accreditation indicator pertained to the documentation of completed O & M evaluations comprised of a minimum of ten (10) percent of the number of on-site sewage permits issued the previous year. In addition to the annual report discussed above, the accreditation review included an assessment of internal guidelines, forms for recording information, and a separate filing system with retrievable documentation of the evaluation findings.

The second accreditation indicator pertained to the approval of replacement system permits where the system has failed, including,"…retrievable documentation of the age (if available), design, site conditions, dates of any previous repairs (if available), and any other pertinent data allowing for assessment of probable reason for failure and relationship to program effectiveness." In addition to the annual report as discussed above, the accreditation review included an assessment of a separate filing system for all failed systems.

As a result of the pilot evaluations and Cycle One, the two most common "Not Met" indicators for the 44 LHDs reviewed during the cycle were as follows:

- 39% – No annual report for O & M evaluations
- 48% – No annual report for failed sewage system evaluations

Cycle Two - 2002
During Cycle Two, 13 LHDs were reviewed prior to January 2003, when the accreditation program was paused. During this phase of Cycle Two, the indicators pertaining to annual reports were the third most common "Not Met" indicators. The results are as follows:

- 38% – No annual report for O & M evaluations
- 38% – no annual report for failed sewage system evaluations

The Pause - 2003
Efforts to review and improve the accreditation process were undertaken during the pause. As a result, the OSTM program experienced the following changes:

- Elimination of the requirement for O & M evaluations
- Addition of "Met with Conditions" designation.

The most dramatic change was the addition of a "Met with Conditions" designation. This designation was intended to identify program areas that had minor deficiencies that the agency could resolve without submittal and approval of a Corrective Plan of Action.

After the Pause – 2004 through 2006
With the above changes incorporated into the accreditation review for the OSTM program, the remaining 21 LHDs evaluated during Cycle Two resulted in fewer "Not Met" indicators as compared to previous reviews. More specifically, the results are as follows:

- 20% of the LHDs reviewed were designated as "Not Met" based on the absence of an annual report for failed sewage system evaluations.

The remainder of the Cycle Two review also resulted in 10% of the LHDs being designated as "Met with Conditions".

In preparation for Cycle Three and as a result of the quality improvement process, a workgroup was formed inclusive of the Department of Environmental Quality (DEQ) and LHD representatives to review the MPRs. Applicable laws, rules, codes and professionally accepted practices were assigned to specific MPRs. This resulted in fewer MPR Indicators, expanded the "Met with Conditions" option, and more clearly defined measures for compliance. For the

OSTM program component to accreditation, Section VII, Indicator 5.1 was modified to eliminate the requirement for an interpretive report and thus only required an annual summary of failed system data.

Cycle Three – 2006 through 2008

As a result of Cycle Three, the review of 44 LHDs determined that the Indicator 5.1 was the amongst the least common "Not Met" indicators. The results are as follows:

- 2% of the LHDs reviewed were designated as "Not Met" based on the absence of an annual summary of failed system data.

The Cycle Three review also resulted in 11% of the LHDs being designated as "Met with Conditions".

During Cycle Three, on-going discussions with the workgroup and some LHDs recognized in part, that efforts were needed in the future to standardize information collection and reporting for failed sewage system evaluation data. These discussions carried into preparation for Cycle Four. In 2008, another workgroup was formed to review the MPRs. As a result, the MPRs were modified; resulting in major changes intended to simplify LHD resource obligations under Indicator 5.1. In addition, it increased consistency in data collection and reporting, and establish a central means for data retention in order to summarize the data, statewide.

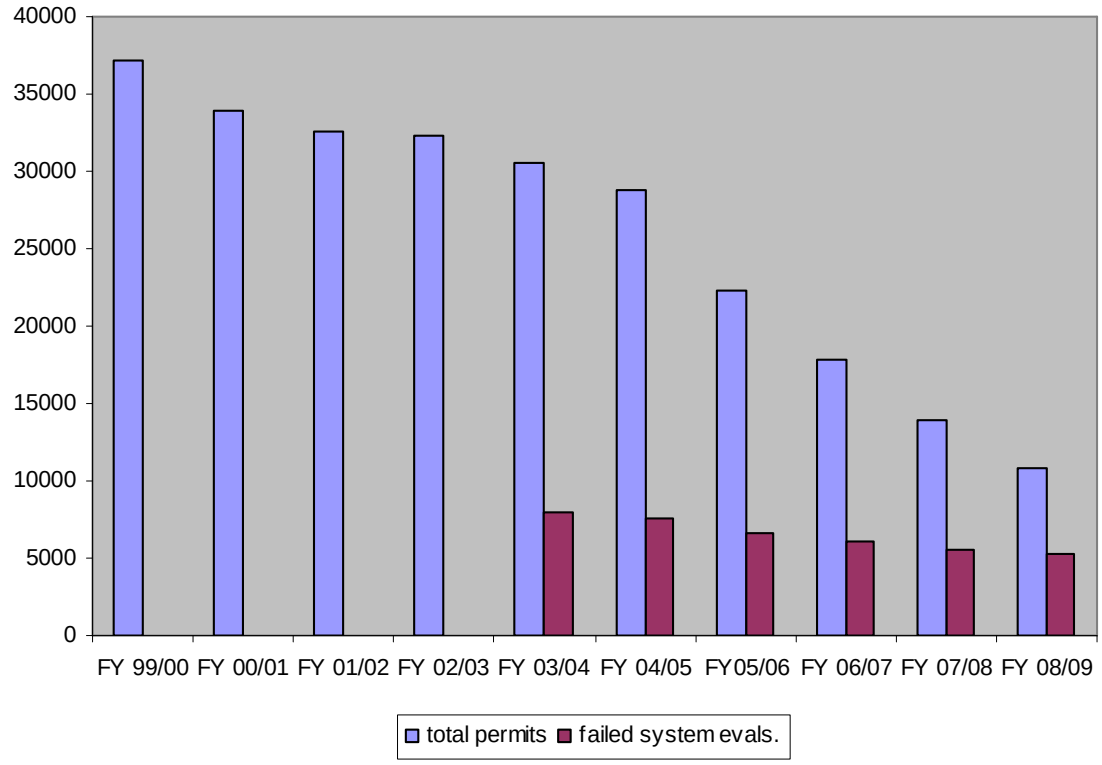
As a result of the above, an entirely new process for collection and reporting failed system data was initiated. The indicator now required uniform collection and submittal of failed system data by all LHDs to DEQ on a calendar year basis beginning January 2009. Relative to the data submission by LHDs, the DEQ committed to generating a statewide summary report. In recognizing the importance of the LHD data collection and submittal in preparing a representative state-wide summary report, the compliance measure of "Met with Conditions" was eliminated. Therefore for Cycle Four, Indicator 5.1 could only be fully "Met" or "Not Met".

In further preparation for Cycle Four, in October 2008 the DEQ completed several regional training meetings utilizing a PowerPoint presentation. These meetings were followed by communication from DEQ to MALEHA representatives requesting assistance in distributing the PowerPoint presentation and a failed system data collection form via the MALEHA listserve with the hope that the information would be communicated by the Environmental Health Directors to their respective professional staff. In December 2008, an Access database was first distributed by DEQ to LHDs for their use to assist in entering the failed system data for subsequent submittal. Subsequently, most LHDs indicated they were able to utilize the database.

Cycle Four – 2009 to present

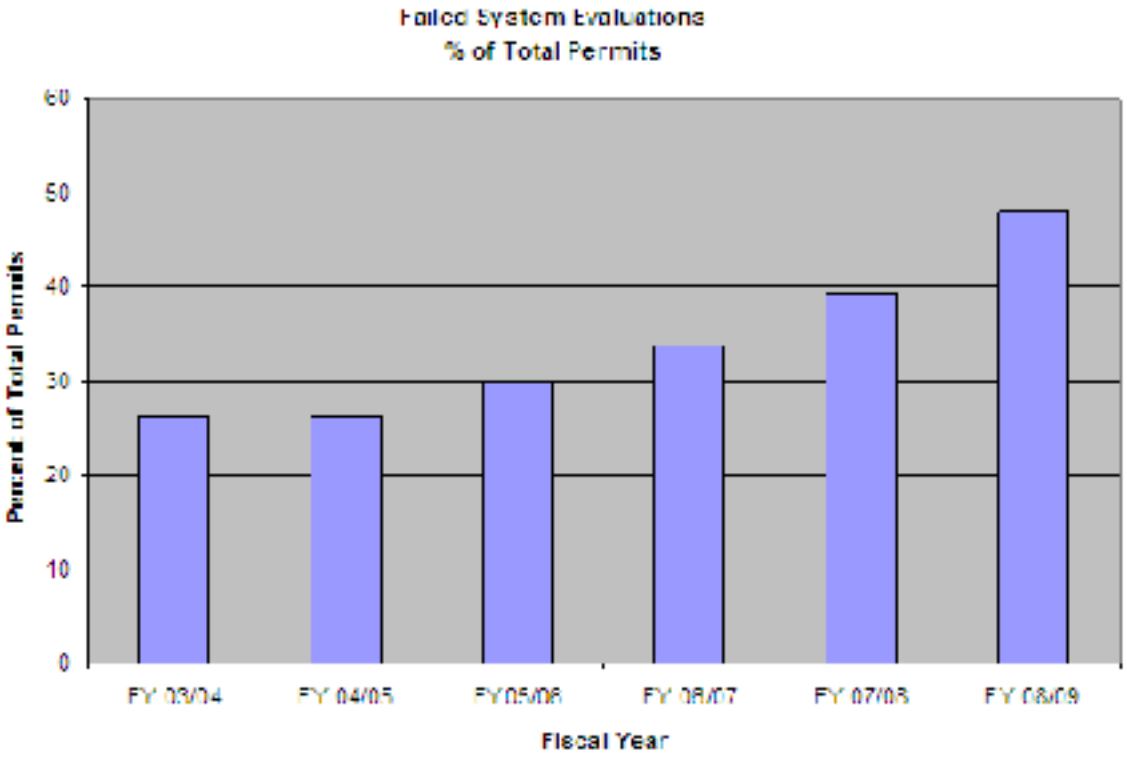
At this writing, Cycle Four is beyond its halfway point and the findings are that nearly 21 percent of the LHDs reviewed thus far have received a “Not Met” for Indicator 5.1. Based on the accreditation reviews conducted, it was determined that the LHDs were either not collecting failed system data at all or they were collecting failed system data inconsistent with the requirements of this indicator. In all cases, the requirement to submit a representative data summary to the State as part of the indicator measure could not be met. In terms of the cause for not meeting the indicator, the accreditation reviews determined the most prevalent factor was a gap in communication within the agency. More specifically, the major changes that occurred with this indicator after Cycle Three was completed and prior to commencing Cycle Four were not effectively communicated to agency staff ultimately responsible for data collection and reporting.

Failed System Evaluation Trends



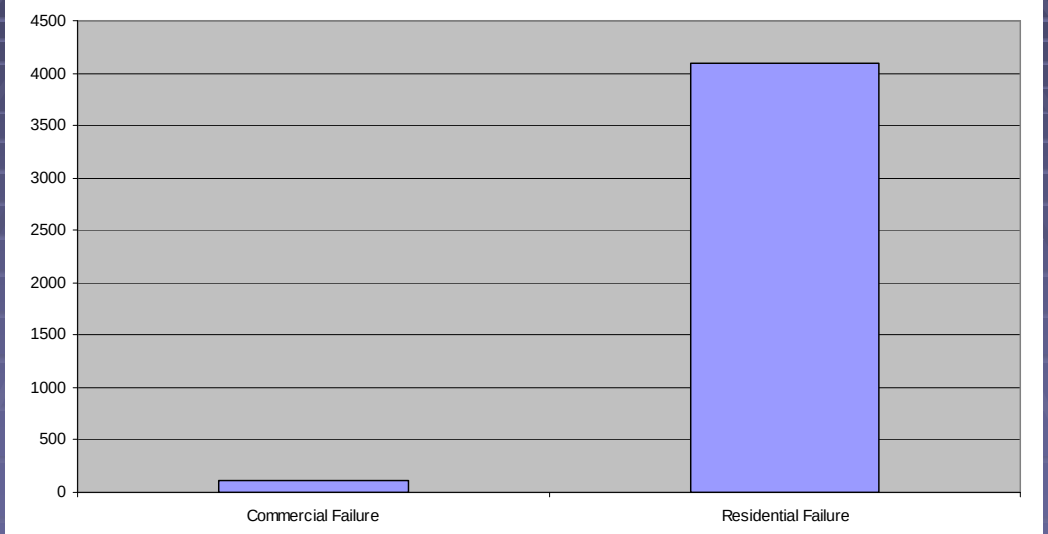
The above bar graph revisits the number of permits issued by LHDs over the past decade and provides a comparison to the number failed system evaluations performed. As noted previously, the numbers of permits issued has dropped significantly; the numbers of failed system evaluations has been reduced only slightly for Fiscal Years 03/04 thru 08/09. As shown in the following bar graph, the percent of failed system evaluations is rising as compared to the total

numbers of permits issued during this timeframe. Based on this observation, identifying failing sewage systems and the resulting issuance of sewage permits to correct the failures has become and will continue to be a major focus of LHD on-site wastewater programs.

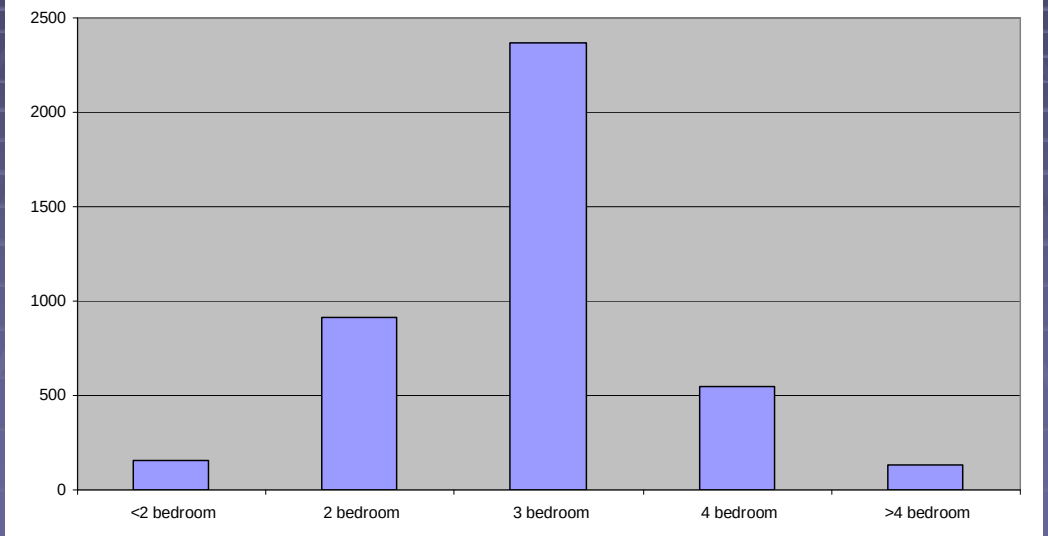


2009 Statewide Failed Sewage System Evaluation Summary
Forty LHD's submitted data that was included in the following summary:

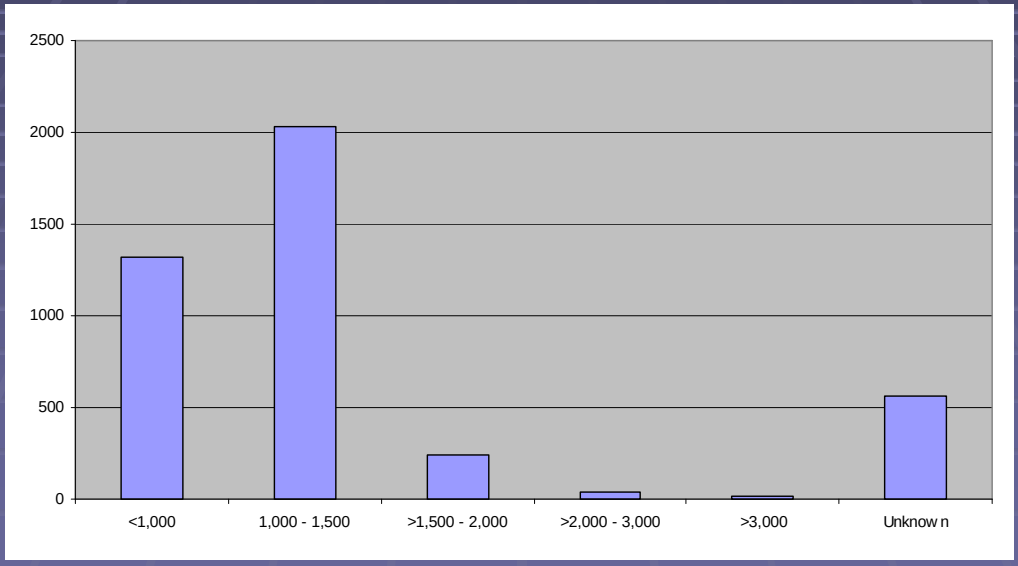
TYPES OF FAILURES



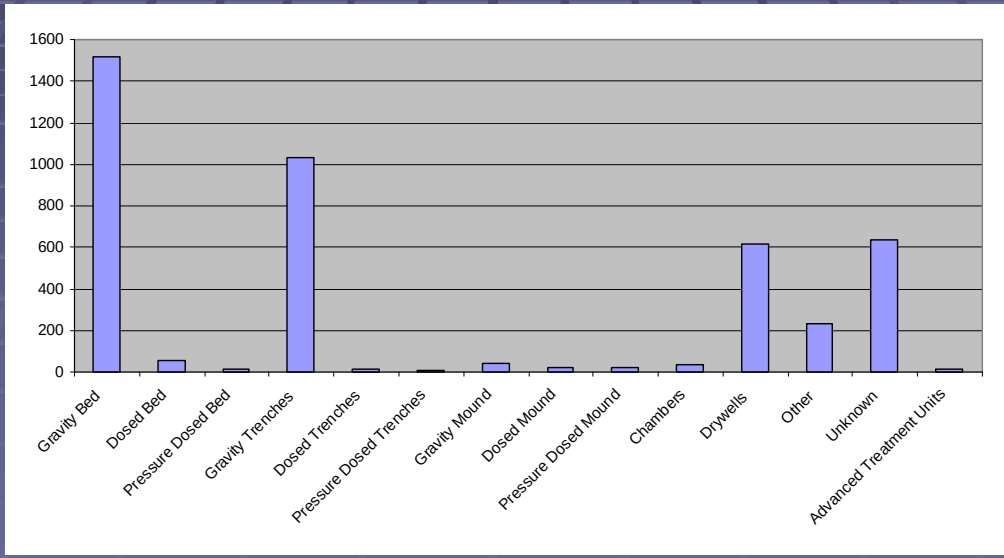
RESIDENTIAL WATER USE



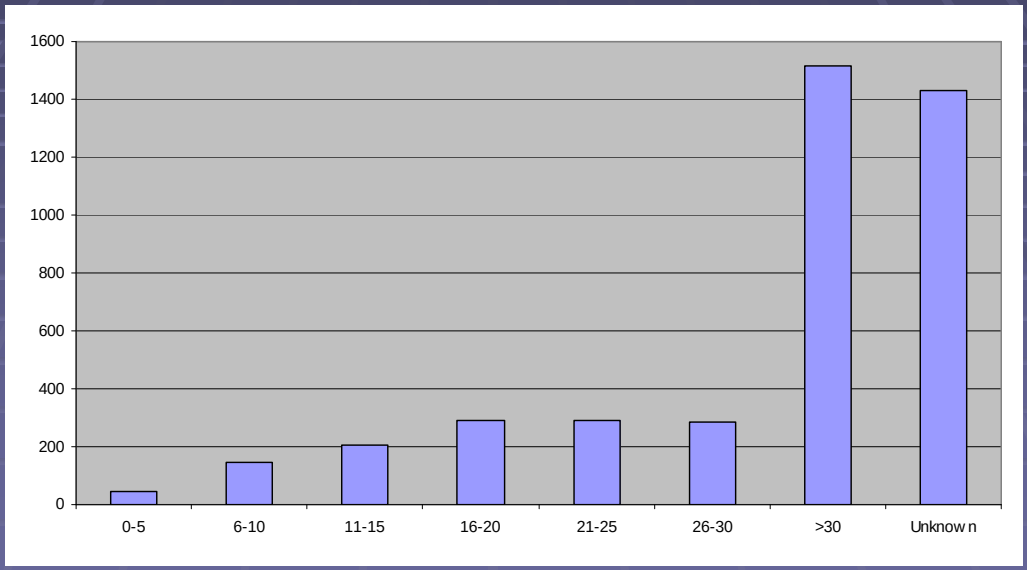
TANK SIZE – TOTAL GALLONS



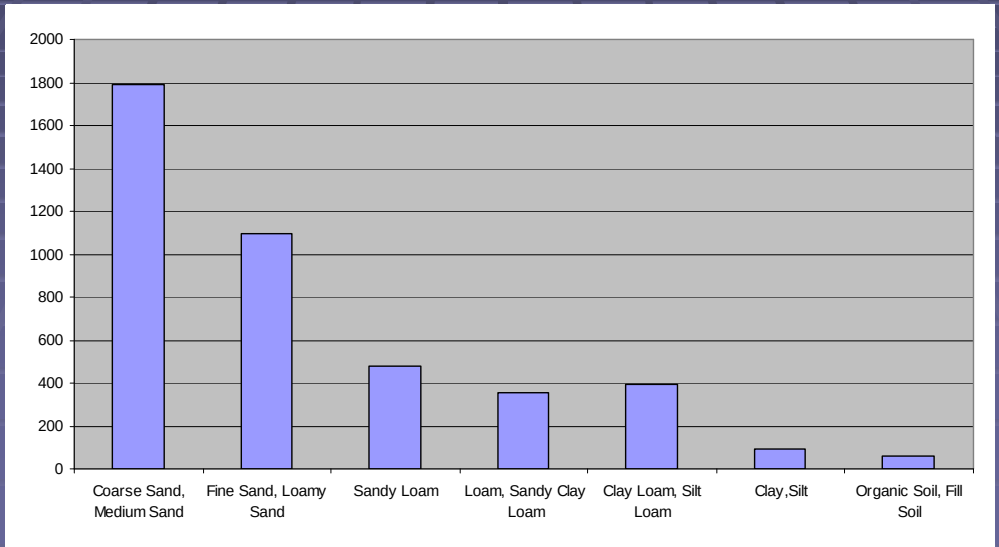
SYSTEM DESIGN



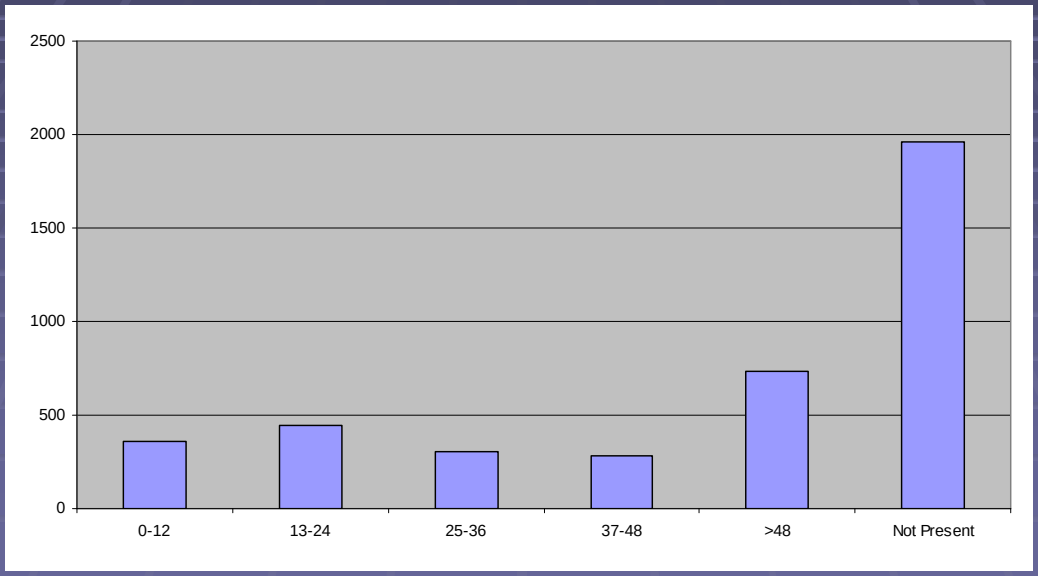
SYSTEM AGE



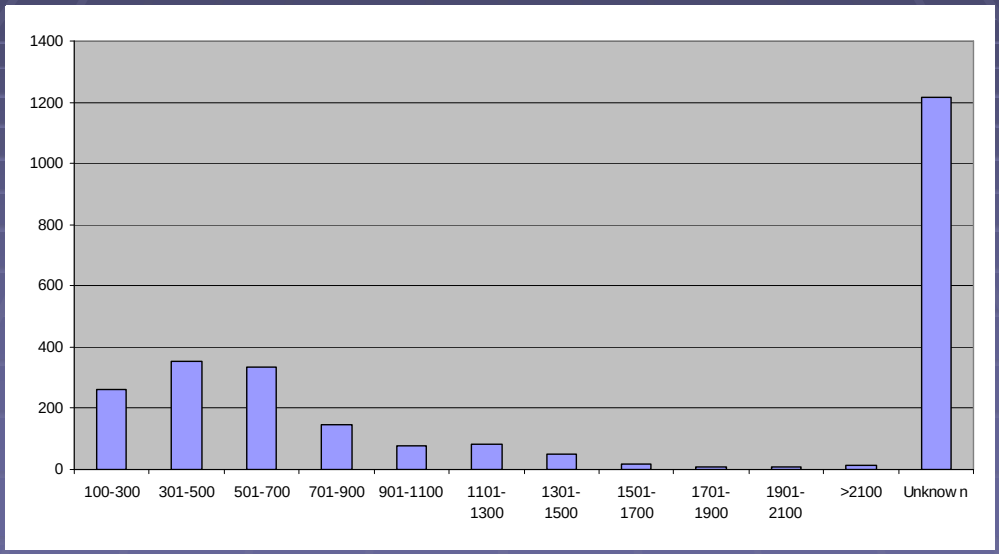
SOIL TEXTURES



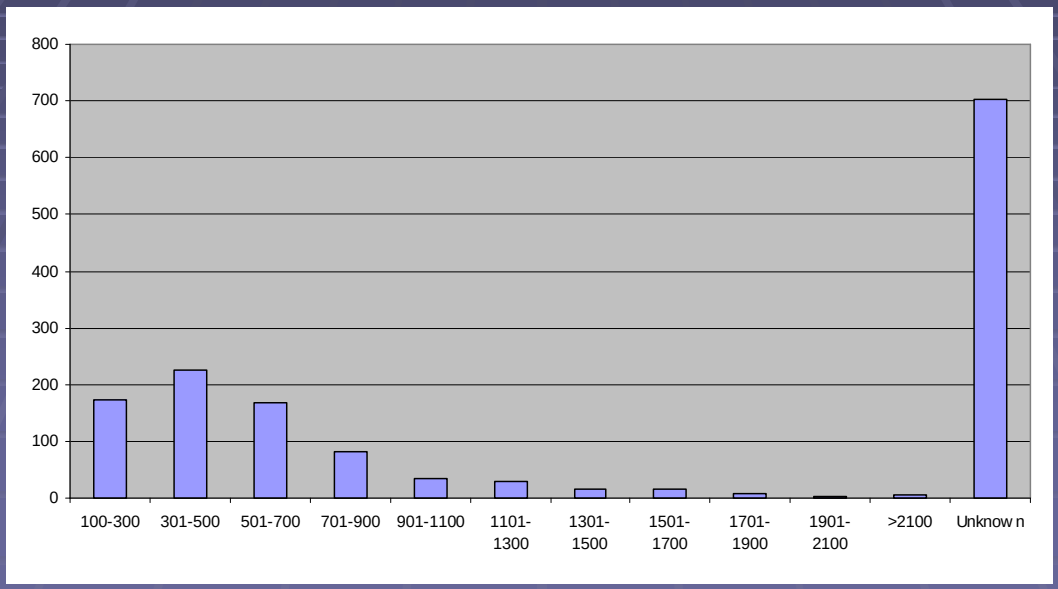
SEASONAL HIGH WATER TABLE



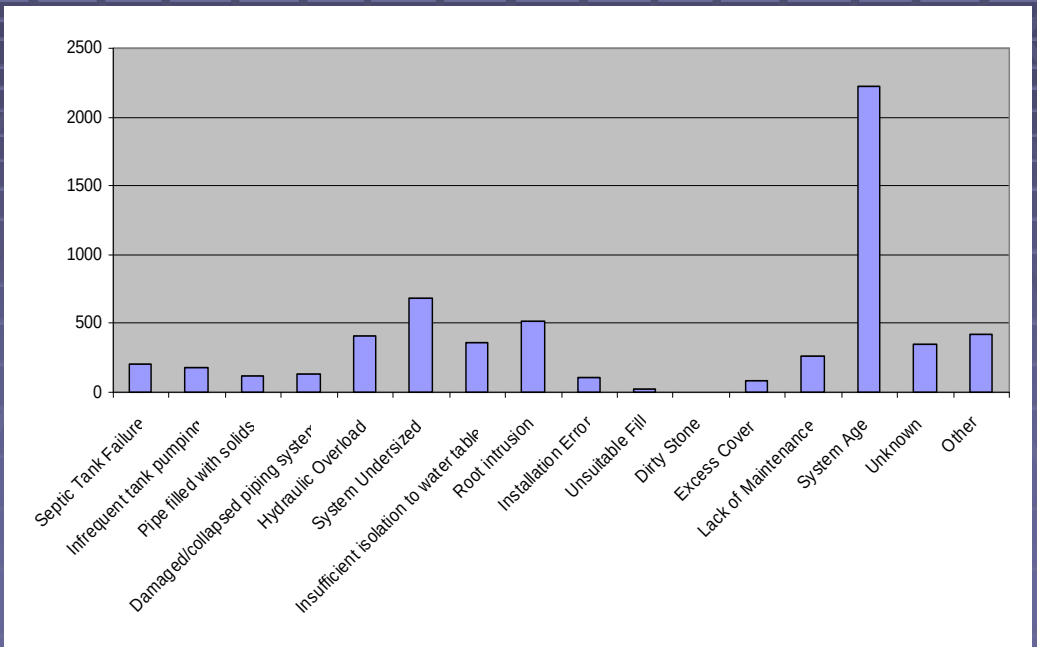
BED SIZE



TRENCH SIZE



PROBABLE CAUSE OF FAILURE



Initial Data Review Findings

Initially, the review the data by the DNRE On-Site Wastewater Unit (OSWU) resulted in a breakdown of data regionally based on the Michigan Environmental Health Association's Regional Affiliate jurisdictions. However, the review determined that the regional data did not vary greatly from the state-wide data so it was excluded from the final report. Any LHDs interested in obtaining the regional information may request it from the DNRE, OSWU.

The review of data for "System Type" identified a significant number of failed drywells and unknown systems. Relative to drywells, some LHDs have taken steps to reduce the numbers of permits issued for drywells and it is anticipated that the number of drywells reported as failures will decline over time. However, some other LHD jurisdictions continue to permit them. The number of drywells existing and additional permits being issued for them are recognized as major concerns. More specifically, drywells provide minimal treatment of wastewater effluent and past accreditation reviews at some LHDs have identified insufficient isolation to seasonal high water tables based on local code requirements and soil profile documentation.

Relative to the unknowns for system type, this may point to the lack of an available permit or other record of the sewage system, or the LHD being unable to determine the existence of a system. The unknowns could also point to the need for better guidance for data collection.

Other that the discussion offered above, this first year's data collection and reporting efforts cannot not establish any trends or draw any conclusions. It is suggested that the data speak for itself.

Additional Data Review and Discussion

In May 2010, the workgroup consisting of representatives of the DNRE and the MALEHA Environmental Affairs Committee convened to review and discuss the data collection, data submission processes as well as review the initial draft report findings of the data. Based upon the discussion, the workgroup suggested that the following changes be implemented in the future regarding data collection:

1. Develop a guidance document.
   Comments – The workgroup's discussion determined there are vast differences in how LHDs are collecting and reporting data and guidance is needed to establish greater consistency with these aspects.

2. Modify data collection to reflect the following:

   a. Separate the commercial elements for data collection from residential to allow for more specific data relative to commercial sewage system failures to be collected.
      Comments – Separating the commercial sewage system failure data from the residential will require modification of the current

form. This change will result in the need to modify the database used to retain failed sewage system data.

b. Capture the different types of septic tanks, such as single tank, two-compartment tank, more than one tank and when no tank exists.
Comments – The capture of this data was requested to garner more specific information and look for future trends.

c. Add "None" as an option for system design.
Comments – The workgroup recognized the need capture the absence of a sewage system.

d. Eliminate "Not Present" as an option for seasonal high water table.
Comments – The workgroup determined that reporting "Not Present" was too subjective based on the various regulations utilized by LHDs across the State.

e. Eliminate "System Age" as an option for most probable cause of failure.
Comments – The workgroup recognized that the keeping the reporting option of "System Age" as the most probable cause of failure lacked sound reasoning. More specifically, the workgroup determined that no matter how old a sewage system is the other data elements identified can be attributed to sewage system failure and age in itself cannot be a justifiable reason for failure.

Summary

The major changes in Indicator 5.1 for Cycle Four are recognized for achieving three primary goals. These are, 1) simplify LHD resource obligations, 2) increase consistency in data collection and reporting, and 3) centralize data retention.

As intended and most importantly, Indicator 5.1 was changed to simplify the overall process for LHDs during times of reduced resources, when everyone is trying to do more with less. As noted previously, earlier accreditation review cycles required LHD's to provide annual reports summarizing failed system data in order to meet the indicator and the changes in this indicator has allowed many LHDs to adjust staff resources to more compelling issues at hand. Based on the feedback received, the vast majority of end users at the LHDs were pleased with the new process.

Secondly, the changes in Indicator 5.1 initiated efforts for creating consistency with respect to failed system data collection and reporting. Most notable is the establishment of a common definition for failure and a standardized data collection form. Having all LHDs evaluate sewage system failures based on the same definition and using the same form (or one which collected the same data)

allowed for increased consistency for reporting data to the DNRE. Although it was learned that the data collection process and the interpretation the data

elements to be collected varies widely amongst LHDs, we believe the change in methodology is a move in the right direction.

Third, the changes requiring the DNRE to provide a summary report of the data collected by LHDs state-wide led to the establishment of the DNRE as the central means for data retention. This change potentially frees up file and/or database storage at 44 different LHDs. Another is that the DNRE is now retaining more specific failed sewage system data representative of Michigan. This information will be beneficial when the discussions with LHDs and other partners resume regarding a statewide sanitary code as basic information will be available quickly. Providing information from statewide failed sewage system evaluations would have been a monumental task prior to changing the data collection and reporting methodology.

Overall, this initial effort to change the methodology of collecting and reporting data for failed sewage systems is recognized as a success. Especially when considering the current and ongoing economical climate where along with LHDs, the State is looking at doing more with less. We feel fortunate that we were able to move forward with the much needed changes in that no additional resources were allocated for this endeavor. Were it not for the assistance of a volunteer whom works outside of the OSWW Unit, the creation of the database and associated information and technology work would not have been accomplished.

In closing, it is anticipated that in the fall of 2010, revised and expanded guidance for data collection and reporting, a new data collection form and an updated database will be provided to LHDs for use during calendar year 2011.